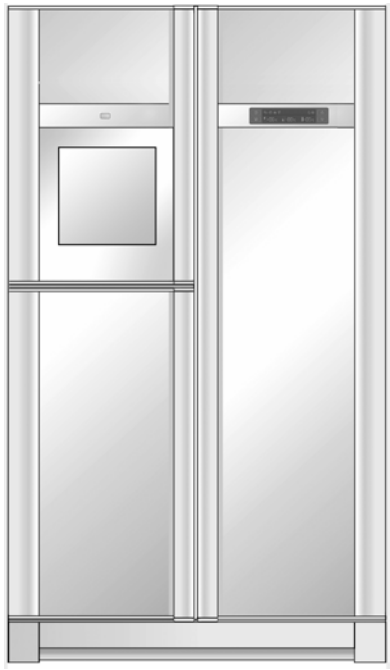
Electrolux

Service Manual



EU Dragon-SxS ERL-4796S

REV:A

Oct.20th,2005

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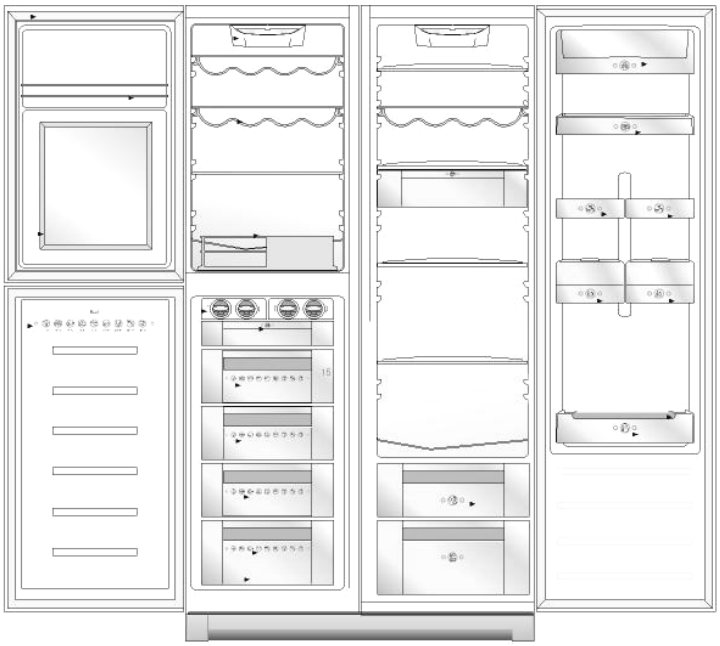


I. Brief introduction

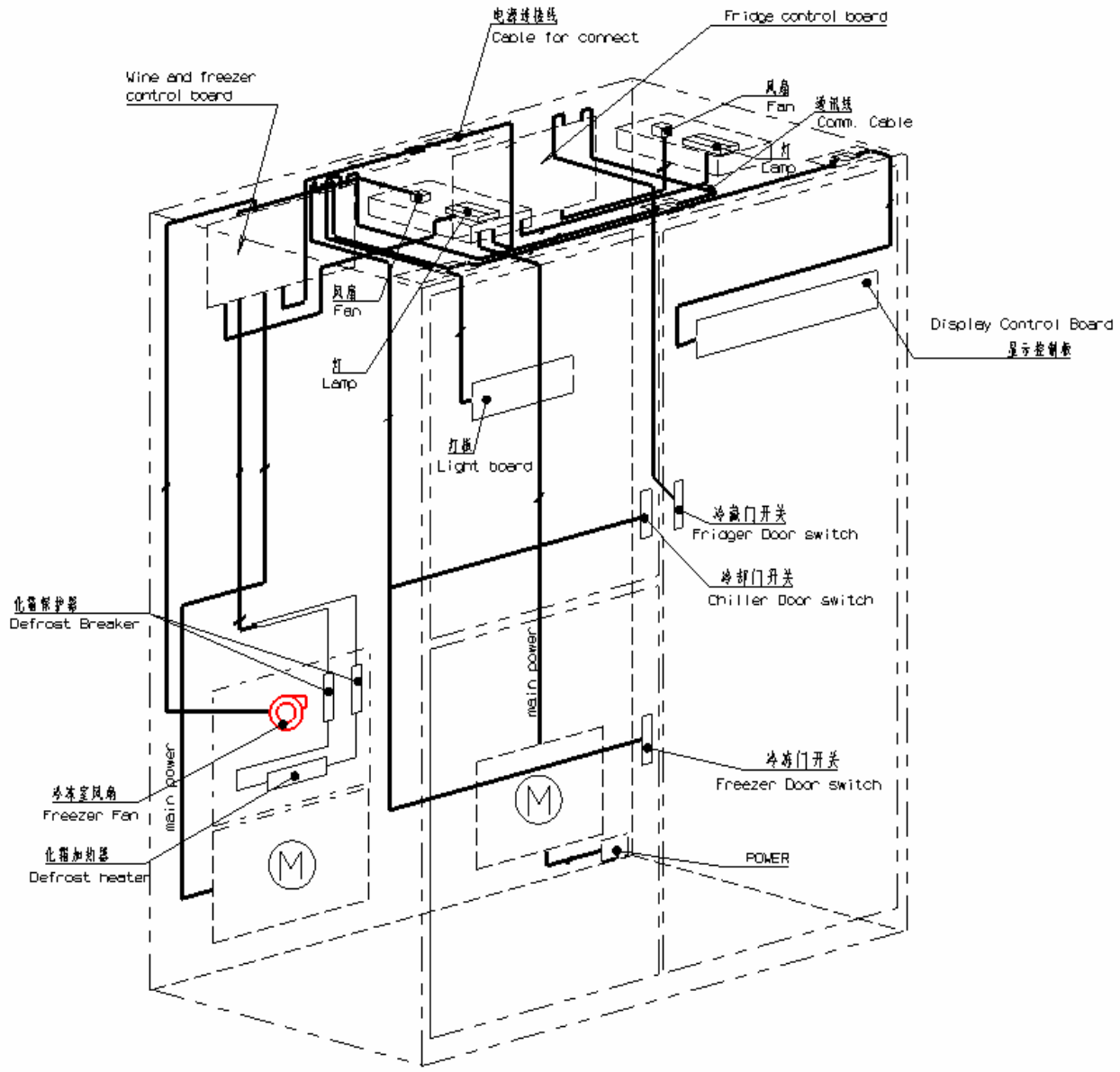
ERL-4796S is a fridge-freezer combination controlled by just one control system. The microcomputer system can control the temperature in the fridge, freezer and wine compartment respectively.
Temperature of the frost-free freezer can be adjusted between –15℃ and –21℃. It is for storage of fresh, cooked or frozen foods and ice-making.
Temperature of the static wine compartment can be adjusted between +6℃ and +14℃. There is an axial fan inside to make the temperature even in the compartment. This compartment is used to store wine and other drinks.
Temperature of the static fridge can be adjusted between +2℃ and +8℃. There is an axial fan inside to make the temperature even. This compartment is used to store foods for short periods.

II. Main technical data

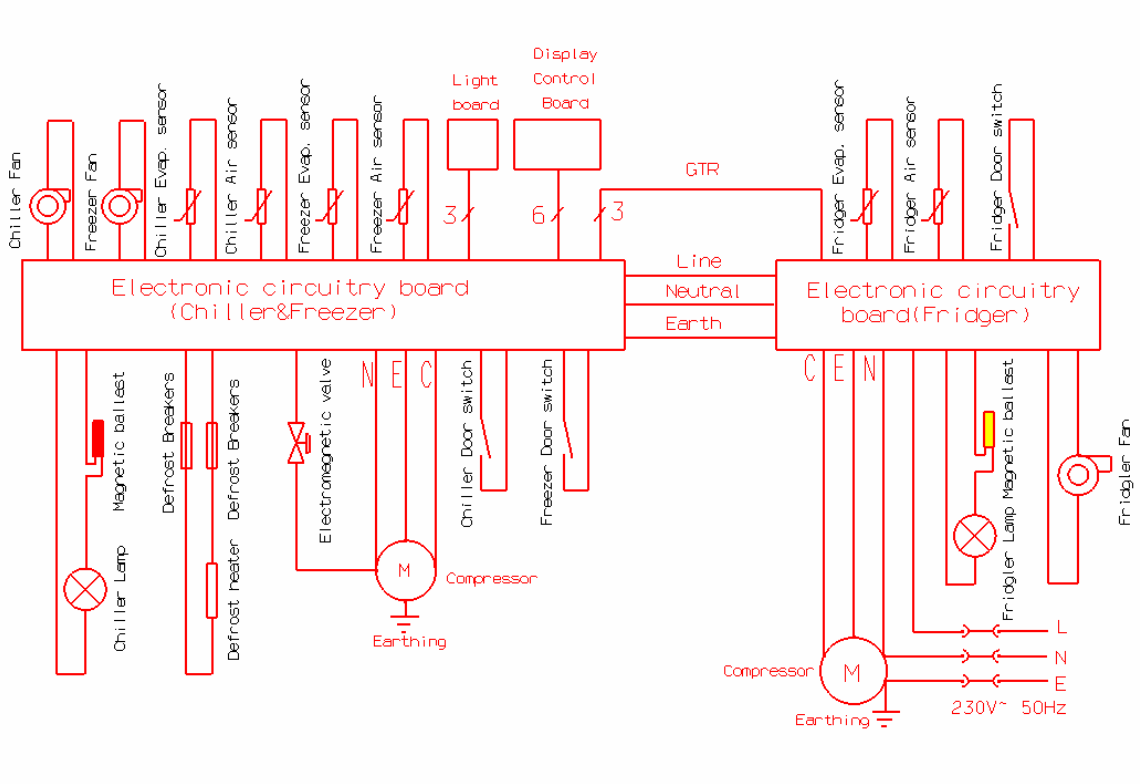
Model		**ERL4796S**
Product code	PNC	**925 028 249 (EU)** composed by cooler 925 028 250 ERL4796COL freezer 925 028 251 ERL4796FZ installation kit 925 028 252 **925 028 253 (UK)** composed by cooler 925 028 254 ERL4796COL freezer 925 028 251 ERL4796FZ installation kit 925 028 252
Dimension (WxDxH)	mm	999x565x1768
Total effective volume (fridge/wine/freezer)	L	266/ 118/ 84
Refrigerant (R134a)	g	170
fridge		80
wine/freezer		90
Climate		SN、N、ST
Freezing star		

Net weight	kg	140
Compressor model		
for fridge		GVY40AA
for freezer & wine compartment		GVY66AA
Rated voltage/frequency	V/HZ	220/50
Voltage range	V	187-242
Power consumption	KW.h/24h	1.65
Freezing capacity (kg/24h)		12
Condenser position		built-in, flat at the back
Freezer layout		left, bottom, drawers
Temperature range: fridge	℃	2 ~ 8
wine compartment	℃	6 ~ 14
freezer	℃	-15 ~ - 21
Warnings		
open door warning (fredge/wine)	minute	＞3
high temperature in freezer	℃	＞-6
high temperature in wine compartment	℃	＞19
high temperature in fridge	℃	＞12
fluoresent lamp	V/W	220/5
Insulation class:		I

III. Electric circuit diagram

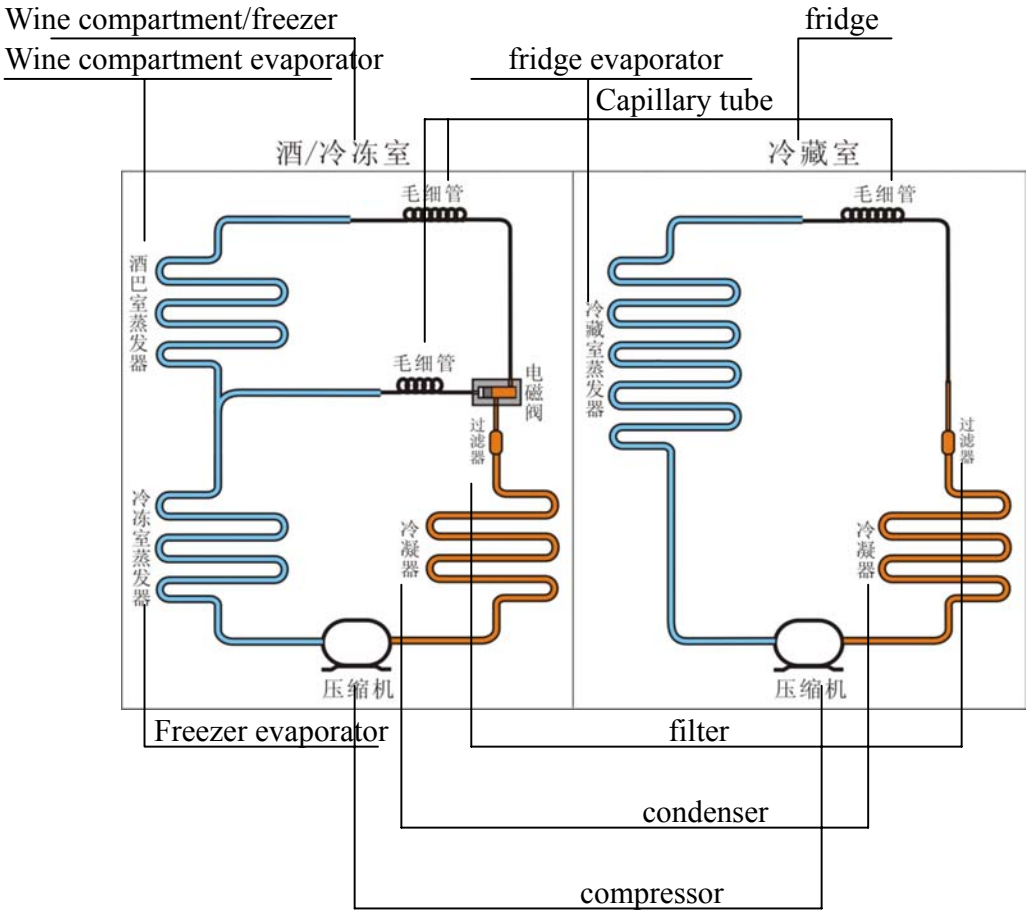


Wiring diagram


Chiller Fan
Freezer Fan
Chiller Evap. sensor
Chiller Air sensor
Freezer Evap. sensor
Freezer Air sensor
Light board
Display Control Board
GTR
Fridger Evap. sensor
Fridger Air sensor
Fridger Door switch
3
6
3
Line
Neutral
Earth
Electronic circuitry board (Chiller&Freezer)
Electronic circuitry board(Fridger)
Magnetic ballast
Chiller Lamp
Defrost Breakers
Defrost Breakers
Defrost heater
Electromagnetic valve
N E C
Chiller Door switch
Freezer Door switch
M
Compressor
Earthing
C E N
Fridgler Lamp
Magnetic ballast
Fridgler Fan
Compressor
M
Earthing
L
N
E
230V~ 50Hz

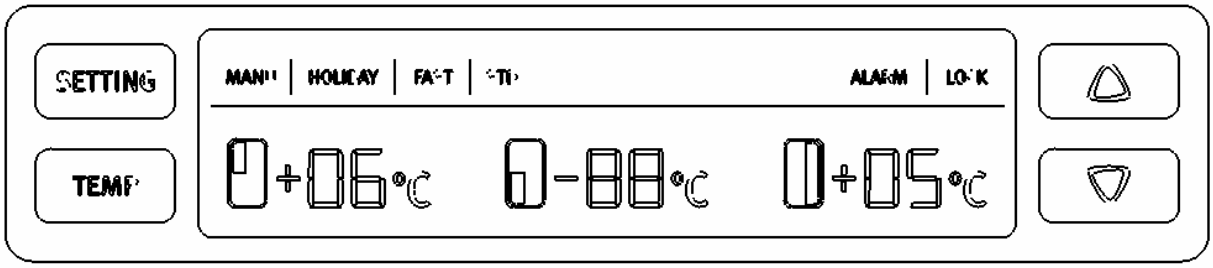
IV. Refrigeration system illustration

This fridge-freezer combination has two separate refrigeration systems. When problem occurs to
either of the two, the rest still works.



V. Components and description

1） **Display board**

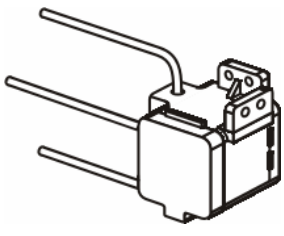


A. For functions and operation of the display board please refer to the User Manual.
B. Functions of Key combination
a. Press SETTING and ▽buttons simultaneously within 1 minute when the power is switched on ---- to activate Device Testing function
b.Press Setting, TEMP, △ and ▽ buttons simultaneously within 1 minute when the power is switched on ---- to activate Demo function
c. Press TEMP and △ simultaneously within 1 minute when the power is switched on ---- to activate Quality Testing function
d. Press SETTING, △ and ▽ buttons simultaneously at any time ---- to activate Forced defrosting function

2）Power board: with power failure memory function and program resumption function. Before any setting is done when the refrigerator is turned on, the default temperature and its range is as follows:

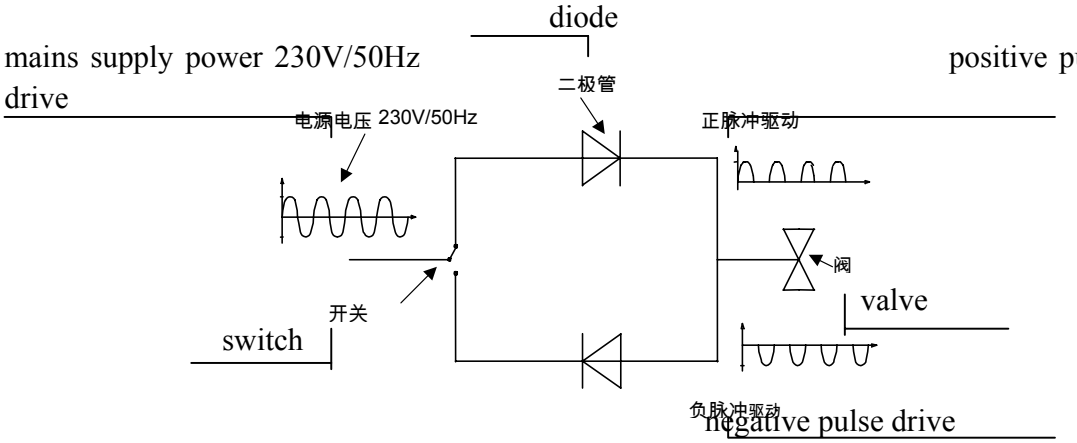
	default	range
Fridge	+5℃	2℃ ~ 8℃
Wine compartment	+12℃	6℃ ~ 14℃
freezer	-18℃	-15℃ ~ -21℃

Electromagnetic valve: the electromagnetic valve is made by AWECO from Germany and is an 2-way 3-pass pulse electromagnetic valve.



Both valves are dual stable state valves controlled by AC current. The flow direction of the electromagnetic valve is controlled by 4

continuous positive half pulse or negative half pulse as the minimum unit. The flow direction will be reversed if the null line and the caustic line are connected wrong.



The working voltage of the valves is 175V~264V

When the ambient temperature is 20~25℃, the numerical value of the resistance of the coil is 2795Ω ± 10%.

Please make sure the conduits of the valves are correctly welded,

The capillary tube with red mark is for the freezer system.

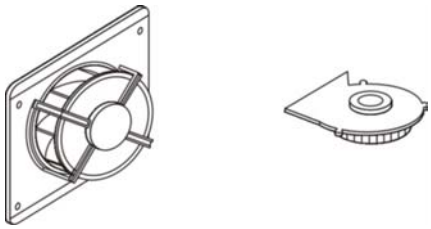
The capillary tube with black mark is for the wine compartment system.

Temperature sensor: There are six sensors on the three compartment inner liners and evaporators respectively.

Their value of resistance at different temperature are the following:

sensor temp	resistance
+20℃	~ 4 K Ω
+10℃	~ 5.4 K Ω
+5℃	~ 6.8 K Ω
-20℃	~ 25 K Ω
-30℃	~ 47 K Ω

4）Centrifugal fan: There is an DC centrifugal fan in the frost-free freezer. There is also an relatively smaller DC centrifugal fan at the top of which is the static wine compartment and fridge, more energy saving and of lower noise compared with regular



fans and keeps a balanced temperature among each compartment with quick temperature decrease.

VI. Malfunction and remedy

1)、“--” displayed for the Wine Compartment
Note:
When the ambient temperature is close to or below 0°C, there is no problem with the appliance. Repair according to item 14 is required only when the food is frozen and “—” is displayed. Temperature of the wine compartment should only be displayed as above 0°C.
2) “C1 ” displayed as the wine compartment temperature
Note:
Temperature sensed by the wine compartment sensor is beyond controllable range
Attention:
If such malfunction occurs, the appliance will be running in a special safe mode. The refrigeration function of the appliance is protected but temperature will not be displayed.
Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the appliance has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the wine compartment sensor is broken
Remedy: check the resistance value of the sensor and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensor.

3) “C2 ”displayed as the wine compartment temperature
Note:
Temperature sensed by the wine compartment and its evaporator sensors is beyond controllable range
注：Attention:
If such malfunction occurs, the appliance will be running in a special safe mode. The refrigeration function of the appliance is protected but temperature will not be displayed.
Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the appliance has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the wine compartment and its evaporator sensors are broken
Remedy: check the resistance value of the sensors and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensors.

4) “C3 ” displayed as the freezer temperature
Note:
Temperature sensed by the freezer sensor is beyond controllable range
Attention:
If such malfunction occurs, the appliance will keep on running. The refrigeration function of the appliance is protected but temperature will not be displayed and Quick Freeze function is disabled.
Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the freezer has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the freezer sensor is broken
Remedy: check the resistance value of the sensors and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensors.

5) “C4 ” displayed as the freezer temperature
Note:
Temperature sensed by the freezer evaporator sensor is beyond controllable range
Attention:
If such malfunction occurs, the appliance will keep on running at the default temperature. The refrigeration function of the appliance is protected but temperature will not be displayed and Defrost function is disabled.
Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the freezer has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the freezer evaporator sensor is broken

Remedy: check the resistance value of the sensor and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensor.

6) “C5”displayed as freezer temperature
Note:
Temperature sensed by the freezer and its evaporator sensors is beyond controllable range
Attention:
If such malfunction occurs, the appliance will keep on running. The refrigeration function of the appliance is protected but temperature will not be displayed. Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the freezer has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the freezer and its evaporator sensors are broken
Remedy: check the resistance value of the sensors and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensors.

7) “ --” displayed as the fridge temperature
Note:
When the ambient temperature is close to or below 0°C, there is no problem with the appliance. Repair according to item 14 is required only when the food is frozen and “—” is displayed. Temperature of the fridge should only be displayed as above 0°C.

8) “C6 ”displayed as the fridge temperature
Note:
Temperature sensed by the fridge sensor is beyond controllable range
注：Attention:
If such malfunction occurs, the appliance will be running in a special safe mode. The refrigeration function of the appliance is protected but temperature will not be displayed. Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the appliance has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the fridge sensor is broken
Remedy: check the resistance value of the sensor and compare it to the value in the

diagram. If the actual resistance value is not in the prescribed range, repair the sensor.

9) “C7 ” displayed as the fridge temperature
Note: Temperature sensed by the fridge and its evaporator sensors is beyond controllable range
注：Attention:
If such malfunction occurs, the appliance will be running in a special safe mode. The refrigeration function of the appliance is protected but temperature will not be displayed. Check if the ambient temperature is above 45°C or not and if the appliance is just switched on or not. If it is just switched on, check the temperature display after the appliance has run for 1 hour.

Cause A(most likely): sensor plug does not contact well with the power board
Remedy: check, clean or repair the plug and/or socket

Cause B: the fridge and its evaporator sensors are broken
Remedy: check the resistance value of the sensors and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensors.

10) Connection malfunction
When the fridge displayed “C8”, it is connection malfunction with the fridge
Remedy: check the connection of the cords and that of the two power boards

11) Audio/video warning
Audio warning: beep alarm
Video warning: “high temperature” flash warning
Four kinds of warning:
A、Door open alarm for fridge, freezer and wine compartment:
Warning starts: when any door opens more than 180 seconds the alarm starts.
Warning ends: when all doors are properly closed, the beep alarm stops. The beep alarm could also be ended by pressing any button. But the alarm resumes 180 seconds later if any door is still open.

B、High temperature warning
Warning starts: when the fridge temperature is or above 12°C; when the wine compartment temperature is or above 19°C; when the freezer temperature is or above –6°C, the “high temperature” sign start flashing.
Warning ends:
A. If the high temperature alarm only occurs to the fridge or the wine compartment, the “high temperature” sign automatically stops flashing when the temperature falls to below corresponding warning temperature.

B. If the high temperature alarm occurs to the freezer:
When the freezer temperature has fallen to below the warning temperature –6°C and temperature in other compartments has also been below the warning temperature respectively, the “high temperature” sign keeps on flashing if no button has been pressed since the begining of the alarm. If any button is pressed at that moment, the highest temperature in the freezer will be on display for 5 seconds and the display will resume normal 5 seconds later.
If the freezer temperature has fallen to its lowest but still above the warning temperature –6°C, the highest temperature in the freezer will be on display for 5 seconds as well if any button is pressed. And the display resumes normal 5 seconds later. Besides, when the temperature in each compartment is below the warning temperature respectively, the “high temperature” sign will automatically stop flashing.

Possible warning:
When the appliance is switched on for the first time, it is not malfunction if the high temperature alarm starts.
Check the temperature display of the three compartments respectively. If the temperature is still above the warning temperature respectively after running for at least 5 hours, it could be problem with the refrigeration system or the electronic control board. Please check. (from Item 12 on)
If a lot of hot food has been put into the appliance, the temperature is likely to rise to the upper limit and activate the warning, which is normal and is not malfunction.
Food is normally to be at least cooled down to the ambient temperature before being put into the appliance. If the “Fast freezing” function is activated when food of ambient temperature is put into the appliance, it lessens the risk of high temperature warning (refer to User Manual for more info).
If the door(s) is(are) not properly opened and closed, it results in alarm. If the light is on when the door is open and off when the door is close, the door works normally.
Do the following checks within 20 minutes when the power supply is on:
If the light never turns off, there might be problem with the magnet, i.e., no magnet has been installed in the fridge door or in the wine compartment door. Or, it could be problem with the magnetic switch.
Do the following checks 20 minutes after the power supply is on:
If the lamp in the fridge or in the wine compartment does not light up, the cause could be either of the above two. Because if such case occurs, the lamp will be switched off by the electronic control board after it was on continuously for 20 minutes (safety protection function).

12)、Refrigeration system in Wine compartment and Freezer does not work

Cause A: the power board is out of work
Remedy: check the Input and Output signal of the power board via “Power board Selfcheck”. (ref. Item 18)

Cause B: loose contact of the power cord of the compressor or the compressor is out of work.
Remedy: Test the compressor power at its Input terminal to find out if it is running or not. Please change the compressor if necessary.

Cause C: the electromagnetic valve is out of work or the capillary tube in the wine compartment or the freezer is blocked.
Remedy: change the electromagnetic valve and check the flow in the capillary tube in the wine compartment or the freezer.

Cause D: refrigerant leakage
Remedy: regular

13)、Refrigeration system in Fridge does not work

Cause A: the power board is out of work
Remedy: check the Input and Output signal of the power board via “Power board Selfcheck”. (ref. Item 18)

Cause B: the capillary tube is blocked
Remedy: check the flow in the capillary tube.

Cause C: refrigerant leakage
Remedy: regular

Cause D: loose contact of the power cord of the compressor or the compressor is out of work.
Remedy: Test the compressor power at its Input terminal to find out if it is running or not. Please change the compressor if necessary.

14)、Temperature in Wine compartment is low
Check:
if the ambient temperature is lower than the set temperature of the wine compartment. If yes, it is normal. If not, the causes could be:

Cause A: the electronic control board is out of work
Remedy: check the Input and Output signal of the power board via “Power board Selfcheck”. (ref. Item 18)

Cause B: the wine compartment sensor is not accurate or not installed at the right place or has contact with warm parts.
Remedy: check the resistance value of the sensor(s) and compare it to the value in the diagram. If the actual resistance value is not in the prescribed range, repair the sensor(s).

Cause C: the electromagnetic valve is out of work
Remedy: change the electromagnetic valve

15)、Temperature in Wine compartment is high
Check:
If the ambient temperature is too high while the set temperature in the wine compartment is relatively low, the wine compartment temperature could be higher than the set temperature in a short period. This is the result of defrosting, which is not a problem.
If the cause is not any of the above, the causes could be:

Cause A: the power board is out of work
Remedy: check the Input and Output signal of the power board via “Power board Selfcheck”. (ref. Item 18)
Cause B: the wine compartment sensor is not installed at the right place.
Cause C: the fan is out of work and the cooling effect is worsened. To find out if the fan works or not you need to activate the “Device Testing” or “Quality Testing” function.

Cause D: the electromagnetic valve is out of work or the capillary tube in the wine compartment is blocked
Remedy: change the electromagnetic valve and check the flow in the capillary tube

16)、Poor Refrigeration performance in Freezer
Check:
the gasket on the freezer door. If no problem with the gasket, the causes could be:
Cause A: the power board is out of work
Remedy: check the Input and Output signal of the power board via “Power board Selfcheck”. (ref. Item 18)
Cause B: the electromagnetic valve is out of work or the capillary tube in the freezer is blocked
Remedy: change the electromagnetic valve and check the flow in the capillary tube

Cause C: the fan is out of work and the cooling effect is worsened. To find out if the fan

works or not you need to activate the “Device Testing” or “Quality Testing” function.

17)、The compressor never stops
Check:
a) If “Fast freeze” is set, it is normal.
b) if the display temperature is higher than the set temperature, it is normal, but if such display runs for a long period, handle according to Item 12 and 13.
If it is none of the above, the causes could be:
Cause A: the power board is out of work
Remedy: check the Input and Output signal of the power board via “Power board Selfcheck”. (ref. Item 16)

18)、power board out of work
Possible damage of the power board could be detected via “Power board Selfcheck”.
This can be done on the refrigerator (to activate the “Device Testing” function.
A. Test on the refrigerator:
a.cut off the power supply
b.turn on the power 5 minutes later
c. Press SETTING and ▽buttons simultaneously within 1 minute and hold on for 5 seconds to activate Device Testing program (see the Table below)

Selfcheck process:	
0 ~ 5 s	All LED display lighted up
5 ~ 10 s	Numerical value of the air sensors in the wine compartment/freezer/fridge displayed. Corresponding error code will be displayed if malfunction occurs to any of the sensors. Freezer/wine compartment compressor indicator on the testing device goes off 5 seconds after it is lighted up. Fridge compressor indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.
10 ~ 15 s	Numerical value of the evaporator sensors in the wine compartment/freezer/fridge displayed. Corresponding error code will be displayed if malfunction occurs to any of the sensors. The valve positive semiwave indicator on the testing device goes off 5 seconds after it is lighted up. The fridge lamp indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.

15 ~ 20 s	Power board software info P018E of the freezer/wine compartment displayed. The valve negative semiwave indicator on the testing device goes off 5 seconds after it is lighted up. The fridge fan indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.
20 ~ 25 s	Power board software info U903 of the freezer/wine compartment displayed. Wine compartment door indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.
25 ~ 30 s	Power board software info P018B of the fridge displayed. The wine compartment fan indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.
30 ~ 35 s	Power board software info U001 of the fridge displayed. The freezer fan indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.
35 ~ 40 s	The freezer heater indicator on the testing device goes off 5 seconds after it is lighted up. Other load(s) off.

Power board software version No. in full: (the latest software version No. will be taken into account at testing)
Wine compartment/freezer power board：P018U903
Fridge power board: P018BU001
2. If there is no power board software version No. displayed, it means there is problem with the software version and the power board is disqualified.

3． During the process of Selfcheck, the effectiveness of the door Input signal can be tested:
When the fridge SW-FR door switch K1 is set at ON, the fridge door lamp turns on. When K1 is set at OFF, the fridge door lamp turns off.
When the wine compartment SW-CL door switch K10 is set at ON, the wine compartment door lamp turns on. When K10 is set at OFF, the wine compartment door lamp turns off.
When the freezer SW-FZ door switch K9 is set at ON, the beeper alarm starts about 90 seconds later. When you set K9 at OFF at this moment, the alarm stops.

4.Press SETTING and ▽buttons on the display board simultaneously and hold on for

5 seconds, the selfcheck program ends with a beeping from the beeper alarm. The program will also end when the selfcheck ends.

19)、Introduction of the defrosting system in the freezer

The defrosting circuit is made up of heater and dual breakers (it turns on at 45°C and turns off at 55°C)

a) The work status of the defrosting circuit is controlled by the control board according to time and the evaporator defrosting sensor.

Defrosted water drainage system is made up of the drainage hole heat conduction part and the drainage hole cap.

If there is defrosting problem when the appliance runs normally, we check in the first place if the heater is connected to the evaporator and if the defrost circuit is connected. The second is to check if the defrosted water drainage system is properly assembled – the drainage hole cap should be closed and the heat conduction part should contact well and be at the right place. The last is to check if the control board works.

20) Maintenance of the fridge is the same with that of the wine compartment.